



Excl. AF#
9-27-98 P3711
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF : Michael J. Sullivan
FOR : **IMPROVED MULTI-LAYER GOLF BALLS**
SERIAL NO. : 08/920,070
FILED : August 26, 1997
EXAMINER : M. Graham
GROUP ART UNIT : 3711
LAST OFFICE ACTION : December 21, 1998
ATTORNEY DOCKET NO. : SLD 2 0035-3-1-1
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APPEAL BRIEF UNDER 37 C.F.R. 1.192

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Appellant files herewith an Appeal Brief in connection with the above-identified application, wherein claims 1-8 were finally rejected in the Office Action of December 21, 1998. What follows is Appellant's Appeal Brief (submitted in triplicate) in accordance with 37 C.F.R. §1.192(a):

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Benjamin M. Fred

Benjamin M. Fred

I. REAL PARTY INTEREST (37 C.F.R. §1.192(c)(1))

The real parties in interest in this appeal are the inventors named in the caption of this brief (Michael J. Sullivan) and his assignee, Spalding Sports Worldwide, Inc.(formerly Lisco, Inc.).

II. RELATED APPEALS AND INTERFERENCES (37 C.F.R. §1.192(c)(2))

Commonly owned application serial no. 08/870,585, is currently on appeal. As the present application is subject to a non-statutory provisional double patenting rejection over 08/870,585, the decision in serial no. 08/870,585 may have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS (37 C.F.R. §1.192(c)(3))

The status of the claims set forth after the Final Office Action mailed December 21, 1998 was, and is, as follows:

Allowed claims: none

Rejected claims: 1-8

The present appeal is directed specifically to claims 1-8.

IV. STATUS OF THE AMENDMENTS (37 C.F.R. §1.192 (c)(4))

In the final Office Action of December 21, 1998, the Examiner rejected claims 1-8 under 35 U.S.C. §103 as being obvious and unpatentable over Proudfit (U.S. Patent No. 5,314,187).

Claims 1-8 also stand provisionally rejected under the judicially created doctrine of double patenting over claims 1-6 of copending application serial no. 08/870,585 and claims 1-6 of copending application serial no. 08/926,246.

V. SUMMARY OF THE INVENTION 37 C.F.R. §1.192 (c)(5)

The invention of this application is directed to refined multi-layer golf ball cover compositions and the resulting multi-layer golf balls produced thereby. The novel multi-layer golf balls of the invention include a first or inner layer or ply of an improved low acid (16 weight percent acid or less) ionomer blend. A second or outer layer or ply is included in the multi-layered golf balls comprised of a comparatively softer, low modulus

ionomer, ionomer blend or other non-ionomeric thermoplastic elastomer such as polyurethane, a polyester elastomer or a polyesteramide.

It has been found that the use of a number of relatively recently developed low acid ionomer resins to produce an inner cover layer, provides for a substantial increase in resilience (i.e., enhanced distance), over a number of known two-piece golf balls. In addition, it has been determined that use of a **blend** of low acid ionomer resins to produce the inner cover layer in combination with a soft outer cover produces enhanced spin and compression characteristics.

Consequently, the overall combination of the inner and outer cover layers results in a golf ball having enhanced resilience (i.e., further travel distance) and durability (i.e., better cut resistance, etc.) characteristics while maintaining, and in many instances, improving the balls playability properties.

VI. ISSUES (37 C.F.R. §1.192(c)(6))

Whether claims 1-8 are obvious under 35 U.S.C. §103(a) over Proudfit (U.S. Patent No. 5,314,187).

VII. GROUPING OF CLAIMS (37 C.F.R. §1.192(C)(7))

Claims 1-8 are directed to golf balls having a particular layered construction.

Appellant submits that claims 1-8 do not stand or fall together but should be reviewed in the following groups:

Group I: Claims 1-6

Group II: Claim 7

Group III: Claim 8

Independent claim 1 (and claims 2-6 which depend therefrom) recites, in part, a golf ball comprising an inner layer that includes a blend of two or more low acid ionomer resins each of which contain no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. Further, the inner cover layer has a Shore D hardness of 60 or more. Finally, the outer cover layer has a Shore D hardness of 64 or less and the Shore D of the outer cover layer is less than the Shore D of the inner cover layer.

Independent claim 7 recites, in part, a multi-layer golf ball comprising an inner cover that includes an ionomeric resin blend that comprises no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid, and which has a modulus (a Flexural modulus) of from about 15,000 to about 70,000 psi, and a Shore D hardness of 60 or more. Further, the cover is formed from a specific ionomeric blend which has a Shore D hardness of 64 or less and a modulus of about 1,000 to about 30,000 psi wherein the modulus of the outer cover is less than that of the inner cover.

Independent claim 8 recites, in part, a multi-layer golf ball comprising an inner cover layer that includes an ionomeric resin blend having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. The inner cover layer has a modulus value of from about 15,000 to 30,000 psi. The outer cover layer having a modulus of about 1,000 to about 30,000 psi. The modulus of the outer cover is less than the modulus of the inner cover.

All claims require the blend of low acid ionomer resins having no more than 16% by weight acid. However, claim 7 further requires a specific ionomeric cover and has particular modulus values for the inner and outer cover layers. Likewise, claim 8 requires a specific non-ionomeric cover and recites particular modulus values for the inner and outer cover layers.

Because each of the independent claims 1, 7 and 8 recite particular limitations not present in each of the other independent claims, Appellant respectfully submits that the claims do not stand or fall together.

VIII. ARGUMENTS (37 C.F.R. §1.192(c)(8))

The Examiner's rejection of claims 1-8 as being obvious and unpatentable under 35 U.S.C. §103(a) over Proudfit (U.S. Patent No. 5,314,187) is erroneous and must be reversed.

The Examiner has rejected claims 1-8 under 35 U.S.C. §103(a) as being unpatentable over the Proudfit (U.S. Patent No. 5,314,187) patent. The basis for the rejection is as follows:

"Proudfit discloses the claimed invention with the exception of the particular Shore D hardness claimed. However, Proudfit discloses a hard inner cover and softer outer cover formed from blends such as those disclosed by the applicant. Obviously the exact hardness of the layers would have been up to the ordinary skilled artisan depending on distance and feel considerations.

Absent a showing of unexpected results, the particular parameters of Proudfit's ball, which is formed from the same materials in the same fashion claimed by applicant, would have been obvious to one of ordinary skill in the art" (emphasis added).

(See Office Action of July 8, 1998, page 2).

In the Final rejection, the Examiner makes the following additional observations concerning Proudfit ('187):

"In response to applicant's arguments Proudfit makes clear (Col. 5, line 57 - Col. 6 line 27) that any "hard" IOTEK or SURLYN ionomers may be used in the blends to construct the hard inner layer. This would necessarily include the known IOTEK ionomers recited by applicant in the instant application.

Regarding the hardness of the outer layer Proudfit, like the applicant teaches a relatively soft outer layer. The applicant has shown no particular unexpected result regarding the claimed Shore D 64 threshold and it remains the examiner's opinion that such would have been within the range of soft cover layers suggested by Proudfit.

Concerning claims 7 and 8 the above arguments apply equally. The applicant has not taught a material not disclosed by applicant nor has any particular unexpected result been subscribed to the particularly recited range of the modulus."

(Office Action of December 21, 1998, page 2).

While Proudfit does disclose various golf balls having a relative softer outer cover over a relatively harder inner cover, Proudfit only described such balls in a general sense and fails to disclose the golf ball as is now particularly claimed. As such, Appellant respectfully submits that the present invention is clearly non-obvious over Proudfit ('187).

More importantly, Appellant has submitted evidence in the form of a Declaration under 37 C.F.R. 1.131 (copy attached hereto as Attachment A) in a related application (U.S. Serial No. 08/926,246) which removes Proudfit ('187) patent as prior art by antedating the Proudfit ('187) patent. This Declaration has been held by the Examiner in the copending 08/926,246 application (who is the same Examiner in the present application) to be effective for antedating Proudfit ('187). Moreover, in an interview conducted on April

9, 1999, the Examiner indicated that such a Declaration, even though not timely in the present application, would be entered if it was found persuasive in the copending 08/926,246 application (see Interview Summary Record of April 9, 1999).

Even though Proudfit ('187) would not qualify as prior art upon submission of a similar Declaration under 37 C.F.R. §1.131 in the present application, Appellant also believes that Proudfit ('187) would have failed to render the claimed invention obvious to one of ordinary skill in the art at the time the instant invention was made.

The Prior Art

Proudfit teaches a two layer cover for a golf ball. The two layer cover comprises an inner layer which is molded over a solid or wound core and an outer layer which is molded over the inner layer. The inner layer is formed from a relatively hard, cut-resistant material such as ionomer resin, and the outer layer is formed from relatively soft materials such as elastomeric or polymeric material selected from the class consisting of natural balata, synthetic balata, natural rubber, polybutadiene, and polyoctenylene rubber.

The Claimed Invention Distinguishes Patentability and Unobviously Over Proudfit ('187)

A close reading of claims 1-8 reveals that each of these claims recites elements and aspects of the present invention golf balls that are not taught or described in the '187 patent to Proudfit.

Independent claim 1 recites, in part, a golf ball comprising an inner cover layer that includes a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. Proudfit notes that blends of two or more types of ionomers "can be used" for the inner cover layer, col 6, lines 19-20. However, Proudfit fails to describe that if two or more ionomer resins are used, they should contain no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.

Independent claim 1 further recites that the inner cover layer has a Shore D hardness of 60 or more. Proudfit entirely fails to teach or even suggest this aspect.

Independent claim 1 continues, and recites that the outer cover layer has a Shore D hardness of 64 or less, and that the Shore D hardness of the outer cover layer is less

than the Shore D hardness of the inner cover layer. Proudfit, again, entirely fails to teach or even suggest this particular feature of the claimed golf ball.

Furthermore, Proudfit fails to describe or even suggest the particular combination of these features by themselves, and the combination of these features with other aspects of the claimed golf ball. Simply put, the '187 patent to Proudfit does not provide the necessary motivation and requisite teaching to arrive at the subject matter recited in claim 1.

Claims 2-6 all depend, or ultimately depend, from claim 1, and so, contain all the recitations of that claim. In addition, these claims recite other features, that particularly when taken in combination with the elements of independent claim 1, are clearly distinguishable from the '187 patent to Proudfit. For at least these reasons, dependent claims 2-6 are all patentable over Proudfit.

Independent claim 7 recites, in part, a multi-layer golf ball comprising an inner cover that includes an ionomeric resin blend that comprises no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid, and which has a modulus of from about 15,000 to about 70,000 psi. Proudfit entirely fails to disclose this aspect of an inner cover layer. Moreover, Proudfit entirely fails to provide any type of teaching for this claimed modulus range.

Independent claim 7 further recites that the multi-layer golf ball comprises an outer cover layer including a particular blend of i) a sodium or zinc salt of a copolymer having from 2 to 8 carbon atoms and an unsaturated monocarboxylic acid having from 3 to 8 carbon atoms, and ii) a sodium or zinc salt of a terpolymer of an olefin having 2 to 8 carbon atoms, acrylic acid, and an unsaturated monomer of the acrylate ester class having from 1 to 21 carbon atoms. Where does Proudfit describe this claimed blend? The Examiner did not indicate where such description was found in the '187 patent.

Furthermore, claim 7 continues and recites a particular combination of Shore D hardness values and modulus ranges for the layers of the claimed golf ball. Specifically, claim 7 recites that the inner cover layer has a Shore D hardness of about 60 or more and has a modulus of from about 15,000 to about 70,000 psi, and that the outer cover layer has a Shore D hardness of about 64 or less and a modulus in a range of about 1,000 to about 30,000 psi, and further that, this modulus is less than the modulus of the inner cover layer.

Proudfit entirely fails to describe, teach, or even suggest this particular combination of properties.

Similarly, independent claim 8 recites, in part, a multi-layer golf ball comprising an inner layer that includes an ionomeric resin blend having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. As previously noted, Proudfit fails to describe this aspect.

Independent claim 8 further recites that the golf ball comprises an outer cover layer that includes a particular type of non-ionomeric thermoplastic elastomer. Also, claim 8 recites that the outer cover layer has a modulus in the range of about 1,000 to about 30,000 psi. These features, especially in combination with additional recitation of claim 8 - that the inner cover layer has a modulus of from about 15,000 to about 70,000 psi, are simply not described in the '187 patent to Proudfit. Additionally, claim 8 contains a further recitation that the modulus of the outer cover layer be less than the modulus of the inner cover layer. These aspects, and particularly the combination of these features are simply not described, taught, or even suggested in the '187 patent to Proudfit.

As such, and contrary to the Examiner's assertion, Appellant has determined an unexpected and undisclosed advantage of the claimed golf ball (having a low acid ionomer blend for the inner hard cover) over prior art golf balls having hard inner covers which are not low acid. Proudfit fails to disclose this advantage for the presently claimed golf balls.

The Provisional Rejections

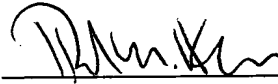
Upon allowance of claims 1-8, Applicant will submit one or more terminal disclosures as may be necessary in the two copending applications cited by the Examiner - U.S. Serial Nos. 08/870,585 and 08/926,246. At this time, no claims have been allowed in any copending application.

In view of the above, Appellant submits that claims 1-8 are clearly patentable over the cited Proudfit ('187) patent.

Accordingly, it is respectfully requested that the Examiner's rejection be reversed.

Respectfully submitted,

FAY, SHARPE, FAGAN, MINNICH
& McKEE LLP.



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IV. APPENDIX OF CLAIMS (37 C.F.R. §1.192(c)(9))

1. A golf ball comprising:

a core;

an inner cover layer having a Shore D hardness of 60 or more molded on said core, the inner cover layer comprising a blend of two or more low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and,

an outer cover layer having a Shore D hardness of 64 or less molded on said inner cover layer, said outer cover layer comprising a relatively soft polymeric material selected from the group consisting of low flexural modulus ionomer resins and non-ionomeric thermoplastic elastomers, and wherein said Shore D hardness of the outer cover layer is less than the Shore D hardness of the inner cover layer.

2. A golf ball according to claim 1, wherein the inner cover layer has a thickness of about 0.100 to about 0.010 inches and the outer cover layer has a thickness of about 0.010 to about 0.70 inches, the golf ball having an overall diameter of 1.680 inches or more.

3. A golf ball according to claim 1 wherein the inner cover layer has a thickness of about 0.50 inches and the outer cover layer has a thickness of about 0.055 inches, the golf ball having an overall diameter of 1.680 inches or more.

4. A golf ball according to claim 1 wherein the inner cover layer comprises a low flexural modulus ionomer resin which includes a blend of a hard high modulus ionomer with a soft low modulus ionomer, the high modulus ionomer being a metal salt of a copolymer having from 2 to 8 carbon atoms and an unsaturated monocarboxylic acid having from 3 to 8 carbon atoms, the low modulus ionomer being a metal salt of a terpolymer of an olefin having 2 to 8 carbon atoms, acrylic acid and an unsaturated monomer of the acrylate ester class having from 1 to 21 carbon atoms.

5. A golf ball according to claim 4 wherein the outer layer composition includes 90 to 10 percent by weight of the hard high modulus ionomer resin and about 10 to 90 percent by weight of the soft low modulus ionomer resin.

6. A golf ball according to claim 4 wherein the outer layer composition includes 75 to 25 percent by weight of the hard high modulus ionomer resin and about 25 to 75 percent by weight of the soft low modulus ionomer resin.

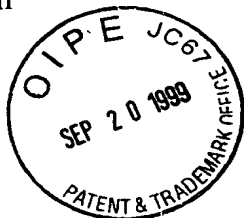
7. A multi-layer golf ball comprising:
a spherical core;
an inner cover layer having a Shore D hardness of about 60 or more molded over said spherical core, said inner cover layer comprising an ionomeric resin blend including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi;
an outer cover layer having a Shore D hardness of about 64 or less molded over said spherical intermediate ball to form a multi-layer golf ball, the outer layer comprising a blend of i) a sodium or zinc salt of a copolymer having from 2 to 8 carbon atoms and an unsaturated monocarboxylic acid having from 3 to 8 carbon atoms, and ii) a sodium or zinc salt of a terpolymer of an olefin having 2 to 8 carbon atoms, acrylic acid and an unsaturated monomer of the acrylate ester class having from 1 to 21 carbon atoms, said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi but less than the modulus of the inner cover layer.

8. A multi-layer golf ball comprising:
a spherical core;
an inner cover layer molded over said spherical core to form a spherical intermediate ball, said inner cover layer comprising an ionomeric resin blend having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi;
an outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball, the outer layer comprising a non-ionomeric thermoplastic selected from the group consisting of polyester elastomer, polyester polyurethane and

polyester amide, said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi but less than the modulus of the inner cover layer.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application : Michael J. Sullivan
For : **IMPROVED MULTI-LAYER GOLF BALL**
Serial No. : 08/926,246
Filed : September 5, 1996
Examiner : M. Graham
Art Unit : 3711
Last Office Action : June 10, 1999
Attorney Docket No. : SLD 2 035-1-2-2
Cleveland, Ohio 44114-2518



COPY

DECLARATION UNDER 37 C.F.R. §1.131

Assistant Commissioner for Patents
Washington, D.C. 20231

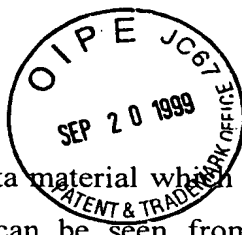
Dear Sir:

As a person signing below:

1. I, Michael J. Sullivan, do hereby declare and say that I am an inventor in the above-identified United States patent application, which Office Action has rejected the claims in said application over U.S. Patent No. 5,314,187 to Proudfit, filed on June 29, 1992 and issued on May 24, 1994.

2. I have read and am familiar with the above Office Action rejecting the claims of the present application. I have further read and am familiar with the Proudfit patent (U.S. 5,314,187) over which said above applicant's claims were rejected.

3. I declare that at a date prior to June 29, 1992, the effective filing date for the subject matter of Proudfit relied upon by the Examiner in the outstanding Office Action, the invention disclosed in the present application was completed in this country. In this regard, I have attached hereto copies of data reproduced from my Laboratory notes (dates



omitted), and other technical data material which establishes the completion of the invention prior to June 29, 1992. As can be seen from the attached data, Table 1 (Exhibit 1) corresponds to Table 7 of the present application and Table 2 (Exhibit 2) corresponds to data present in Table 8 of the present application. I hereby declare that the attached evidentiary materials were prepared prior to June 29, 1992.

4. Specifically, Table 1 attached hereto represents various inner cover layer blends used in preparing golf balls according to the present application. The blends shown in Table 1 for inner cover layers correspond to the blends for inner cover layers of Table 7 in the present application in the following manner.

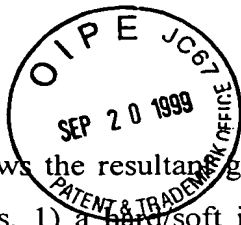
Attached Table 1
Reference No.

U.S. 08/926,246
Corresponding Table 7
Reference Letter

61-1	A
61-2	B
61-3	C
61-4	D
61-5	E

5. Table 1 gives the composition and properties of balls that were molded using materials that form the inner layer of the multi-layer ball. That is, (in Table 1) 1.680" diameter balls were molded over 1.545" diameter cores, giving a cover having a wall thickness of about 0.0675". These balls included the high acid materials from Exxon (ex. 61-1), DuPont (ex. 61-3) as well as zinc stearate loaded high acid (ex.61-2), Surlyn 1605, now designated Surlyn 8940 (ex. 61-4) and a blend of Iotek 8000/7030 (ex. 61-5). The spin, COR, and other various properties are ultimately for comparison with the multi-layer balls according to the invention as shown in Table 2 (which corresponds to date in Table 8 of the present application).

6. The balls of Table 1 were then ground down to a size of 1.620" and covered with a "soft" outer layer to form the balls of Table 2.



7. Table 2 shows the resultant golf balls (1.680" diameter) using, as an outer layer, one of three materials, 1) a hard/soft ionomer blend according to the present application, 2) a polyurethane from B.F. Goodrich, and 3) Surlyn 9020 (previously designated Surlyn 1855).

8. The resultant balls depicted in Table 2 are represented in Table 8 of the present application as follows:

U.S. 08/926,246

Attached Table 2

Corresponding Table 8

Reference No.

Reference No.

544-84-1	1
544-84-2	2
544-84-3	3
544-84-4	4
544-84-5	5

9. It is noted that the component designated as "core" type in table 2, using identifiers 61-1 through 61-5, correspond to the intermediate balls having those same reference numbers in Table 1. Likewise, Table 8 of the present application also utilizes the intermediate golf balls of Table 7, A-D, which correspond to the intermediate balls 61-1 through 61-4 of Table 1 attached hereto (as set forth above).

10. Each of the dates deleted from Exhibits 1 and 2 is prior to June 29, 1992.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true ; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Michael J. Sullivan Sept. 1, 1999
Michael J. Sullivan (Date)

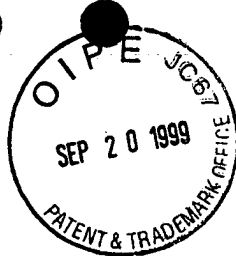


Table 1

<u>544-</u>	<u>61-1</u>	<u>61-2</u>	<u>61-3</u>	<u>61-4</u>	<u>61-5</u>
Iotek EX-959	50	50	--	--	--
Iotek EX-960	50	50	--	--	--
Zinc Stearate	--	50	--	--	--
Surlyn 8162	--	--	75	--	--
Surlyn 8422	--	--	25	--	--
Surlyn 1605	--	--	--	100	--
Iotek 7030	--	--	--	--	--
Iotek 8000	--	--	--	--	50
					50
Compression	58	58	60	63	62
COR	.811	.810	.807	.793	.801
Shore C Hardness	98	98	97	96	96
Spin Rate (RPM)*	7,367	6,250	7,903	8,337	7,956
Cut Resistance	4-5	4-5	4-5	4-5	4-5

* Note: Test performed with a Tour Edition #9 iron and a club head speed of 105 fps.

Michael J. Sullivan
[REDACTED]

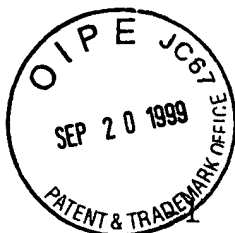
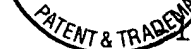



Table 2

544-84		-2	-3	-4	-5
					
<u>"Core" Type</u>	<u>61-1</u>	<u>61-2</u>	<u>61-3</u>	<u>61-4</u>	<u>61-5</u>
Cover *	TE-90	TE-90	TE-90	TE-90	TE-90
Compression	63	63	69	70	62
COR	.784	.778	.780	.770	.779
Shore C Hardness	88	88	88	88	88
Spin (RPM)	8,825	8,854	8,814	8,990	8,844
Cut Resistance	3-4	3-4	3-4	3-4	3-4

544-84	-6	-7	-8
<u>"Core" Type</u>	<u>61-1</u>	<u>61-5</u>	<u>61-4</u>
Cover	PU	PU	9020
Compression	67	69	61
COR	.774	.772	.757
Shore C Hardness	74	73	89
Spin (RPM)	10,061	10,637	8,846
Cut Resistance	3-4	3-4	1-2

- * A) PU is B.F.Goodrich Polyester Polyurethane X-4517
B) TE-90 is 22.7 wt-% Iotek 8000; 22.7 wt-% Iotek 7030;
45.0 wt-% Iotek 7520; 9.6 wt-% White MB
C) 9020 is Surlyn 9020

 Michael J. Sullivan
